DM-10/2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Re: Appeal to the Board of Patent Appeals and Interferences

In re Application of: Welch, et al.

Group Art Unit: 1771

Serial No.: 09/855,169

Examiner: Aftergut, Jeff H.

Filed: May 14, 2001

Our Customer ID: 22827

For: Method and Apparatus for Producing Laminated Articles

Our Account No.: 04-1403

Sir:

Attorney Ref.: KCX-225 (14590)

1. [ ] **NOTICE OF APPEAL**: Pursuant to 37 CFR 41.31, Applicant hereby appeals to the Board of Appeals from the decision dated ____ of the Examiner twice/finally rejecting claims ____.
2. [X] **BRIEF** on appeal in this application pursuant to 37 CFR 41.37 is transmitted herewith (1 copy)
3. [ ] An **ORAL HEARING** is respectfully requested under 37 CFR 41.47 (due within two months after Examiner's Answer).
4. [ ] Reply Brief under 37 CFR 41.41(b) is transmitted herewith (1 copy).
5. [ ] "Small entity" verified statement filed: [ ] herewith [ ] previously.
6. **FEE CALCULATION:**

		Fees
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Petition is hereby made to extend the original due date of March 17, 2005 to cover the date of this paper and any enclosure for which the requisite fee is (1 month $120); (2 months $450); (3 months $1,020); (4 months $1,590), (5 months $2,160)		$ 450.00
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[ ] Fee enclosed. [X] Credit Card Payment Form
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The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any fees in addition to the fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (deficiency only) now or hereafter relative to this application and the resulting official document under Rule 20, or credit any overpayment, to our Account No. **04-1403** for which purpose a duplicate copy of this sheet is attached. This statement does not authorize charge of the issue fee in this case.

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DORITY & MANNING, ATTORNEYS AT LAW, P.A.

By: Timothy A. Cassidy Reg. No.: 38,024
Signature: _____
Date: April 18, 2005

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, U.S. Patent and Trademark Office, Post Office Box 1450, Alexandria, VA 22313-1450, on April 18, 2005.

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_____
(Signature of person mailing paper or fee)

PATENT

ATTORNEY DOCKET NO.: KCX-225 (14590)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application: Welch, et al.	)	Art Unit: 1771
Serial No.: 09/855,169	)	Examiner: Aftergut, Jeff H.
Filed: May 14, 2001	)	Acct. No.: 04-1403
Title: Method and Apparatus for Producing Laminated Articles	)	

Commissioner of Patents and Trademarks
P. O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellants submit the following Brief on Appeal in accordance with 37 C.F.R. §41.37:

1. Real Party in Interest

The real party in interest in this matter is the Assignee of Record, Kimberly-Clark Worldwide, Inc.

2. Related appeals and interferences

There are no other appeals or interferences known to the Appellants or the Appellants' legal representative which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. Status of the Claims

Claims 31-41 and 47-52 are currently pending in the present application, including independent claims 31 and 47.[1] All of the pending claims are attached hereto as Exhibit A.

[1] In the Final Office Action, claims 30 and 42-46 were withdrawn from consideration according to the restriction requirement stating that claims 30 and 42-46 are directed to a different species. Appellants acknowledge the withdrawal of claims 30 and 42-46, with traverse as stated in the reply of March 5, 2004, as indicated in paragraph 3 of the Final Office Action.

4. Status of Amendments

To the Appellants' knowledge, all amendments filed by Appellants have been entered into the record.

5. Summary of the Claimed Subject Matter

The present invention is generally directed to methods and apparatus for producing nonwoven laminates in a vertical plane, as opposed to a horizontal plane. In the present vertical filament lamination process, an extruder supplies strands of elastic continuous filaments to the lamination process. In some embodiments, the continuous filaments are provided to a series of various rollers maintained in a vertical "S-shaped" arrangement.

Generally, the rollers are positioned and operated so as to cause the continuous filaments to be stretched as they vertically flow through the bank of rollers toward a bonding station. In one embodiment, one or more of the rollers may be chilled so as to simultaneously quench the continuous filaments as they are being stretched. Pg. 4, ll. 10-24.

The number of rollers used to convey the continuous filaments to the bonding location may vary depending on the particular attributes desired in the final product. Pg. 5, ll. 22-24. For example, both independent claims 31 and 47 require that only two vertically arranged chilled rollers are present.

Independent claims 31 and 47 also require that the continuous filaments flow to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller. As described in the specification, an angled or canted orientation provides an opportunity for the filaments to emerge from the die and angle to the roll tangent point resulting in improved spinning, more efficient energy transfer, and generally longer die life. This improved configuration allows the filaments to emerge from the die and follow a relatively straight path to contact the tangent point on the roll surface. Pgs. 11-12, ll. 26-1.

The vertical flow of the present disclosure allows for several benefits over prior horizontal flow processes, as well as prior vertical processes. For example, because the continuous filaments are being extruded in a vertical direction that is approximately in line with the vertical flow of the entire limination process, automatic re-threading of filaments when they are broken or interrupted in their travel downward may be

achieved. In addition, the series of rollers are arranged so as to provide the predetermined stretching characteristics to the continuous filaments. Pg. 5, ll. 13-21.

After stretching, the continuous filaments are generally conveyed into position at a bonding station so that a facing may be bonded to the continuous filaments. In some embodiments, bonding the continuous filaments to the facing requires the application of an adhesive to the facing in order to bond the stretched continuous filaments to it. Furthermore, in some embodiments, a second facing may be bonded to the other unattached surface of the stretched continuous filaments so as to achieve a stretchable article wherein the continuous filaments are sandwiched between at least two outer facings. Pgs. 4-5, ll. 25-4.

Also, the apparatus and methods of the present invention can generally employ nip rolls to apply pressure to the adhesive coating facing and the continuous filaments to result in the necessary lamination of the final product. A bonder, or nip roll, section of the laminating apparatus or method performs the primary stretching on the continuous filaments. Pg. 16, ll. 5-9.

For example, independent claim 31, is generally directed toward a method for producing a composite nonwoven fabric in a vertical plane, comprising (a) providing an extruder having a plurality of die heads, a vertically-arranged series of first and second chilled rollers, and a set of nip rollers. The extruder is located above the vertically-arranged series of first and second chill rollers. The first chilled roller is positioned vertically below the extruder so that extruded filaments from the extruder flow directly to the first chilled roller. The second chilled roller is positioned vertically below the first chilled roller and located before the set of nip rollers so that the extruded continuous filaments flow directly from the first chilled roller to the second chilled roller and then directly to a nip formed by the set of nip rollers.

The method of claim 31 also comprises (b) extruding heated continuous filaments from the die heads of the extruder directly to the first chilled roller, wherein the extruder is further configured to provide the continuous filaments to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller, (c) conveying the continuous filaments directly from the first chilled roller to the second chilled roller, (d) quenching and stretching simultaneously the continuous filaments to form stretched continuous filaments.

Also, the method of claim 31 comprises (e) conveying the stretched continuous filaments directly from the second chilled roller to the nip, (f) providing at least one nonwoven web, (g) applying an adhesive on the surface of the one nonwoven web and then providing said one nonwoven web to the nip, and (h) laminating the stretched continuous filaments with the nonwoven web in the nip to form a composite nonwoven fabric.

Independent claim 47 is generally directed to an apparatus for producing a composite nonwoven fabric, comprising (a) an extruder having a plurality of die heads for extruding heated continuous filaments, (b) a vertically-arranged series of first and second chilled roller, (c) a nip comprising at least two nip rollers, (d) a roller mechanism for providing a first web to said nip to be laminated with the continuous filaments so as to form a continuous filament laminate, and (e) a mechanism for carrying the continuous filament laminate away from the nip.

According to claim 47, the first chilled roller is positioned vertically below the extruder so that extruded filaments from the extruder flow directly to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller and the second chilled roller is positioned vertically below the first chilled roller so that the extruded continuous filaments flow directly from the first chilled roller to the second chilled roller. Also, the nip is positioned vertically with respect to the first chilled roller in order to receive the heated continuous filaments directly from the second chilled roller.

6. Grounds of Rejection to be Reviewed on Appeal

In the Final Office Action dated June 18, 2004, claims 31-34, 36-41, and 47-52 were rejected under 35 U.S.C § 103(a) as being unpatentable over Canadian Patent No.: 2,248,575 ("CAN '575") in view of PCT WO 92/16366 ("PCT '366") and any one of U.S. Patent No. 4,816,094 issued to Pomplun et al., U.S. Patent No. 4,719,261 issued to Bunnelle, et al., or U.S. Patent No. 4,166,089 issued to De Geest, et al.

Also, claim 35 was rejected under 35 U.S.C § 103(a) as being unpatentable over the references as set forth above further taken in view of any one of Japanese Patent No. 54/82424 ("JP '424"), U.S. Patent No. 3,807,270 to Wirz, or 3,694,871 to Ditzler.

7. Argument

I. Claims 31-34, 36-41, 47-52, are patentable under 35 U.S.C. § 103(a) over Can '575 in view of PCT '366 and any one of Pomplun, et al., Bunnelle, et al., or De Geest, et al.

Currently, claims 31-41 and 47-52 remain pending in the present application, including independent claims 31 and 47. Generally, independent claim 31 is directed to a method for producing a composite a nonwoven fabric in a vertical plane. Independent claim 47 is generally directed to an apparatus for producing a composite nonwoven fabric.

In the Final Office Action, the pending claims were rejected under 35 U.S.C § 103(a) as being unpatentable over CAN '575 in view of PCT '366 and any one of Pomplun, et al., Bunnelle, et al., or De Geest, et al. CAN '575 is directed to a process for producing a composite elastic material including a layer of ribbon shaped elastomeric elements disposed in a machine direction alignment and bonded to an extensible layer which may be a gatherable layer or a stretchable layer.

In particular, in Figure 10 of CAN '575, a process for making a composite elastic material of that disclosure is taught. As discussed on page 40-41, Figure 10 shows that ribbon shaped elastomeric filaments are extruded from the modified cast film extrusion die and are quenched using four chilled rollers. However, CAN '575 fails to teach the use of only two chilled rollers. Furthermore, CAN '575 does not teach that the continuous filaments are extruded directly to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller.

The disclosure of CAN '575 was combined with the disclosure of PCT '366 in the Final Office Action to make-up for the deficiencies of CAN '575. PCT '366 is directed to a process for producing an elasticized fabric. Specifically, PCT '366 is cited in the Final Office Action as disclosing extruding elastic filaments from an extruder in a canted direction toward a temperature controlled take up roller. The Office Action cites Figure 3 and 4 as well as lines 28-31 on page 20 of PCT '366.

However, even after the combination of CAN '575 and PCT '366, no teaching or suggestion exists for the use of only two chilled rollers, as required by the presently pending claims. Thus, Pomplun, et al., Bunnelle, et al., or De Geest, et al. were all cited for the disclosure of two chilled rollers. However, as the Office Action admits, none of

these references disclose that the first chilled roller is positioned vertically below the extruder so that the extruded heated continuous filaments flow directly to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller. The above cited references also fail to disclose a second chilled roller that is also vertically positioned so that the continuous filaments flow directly from the first chilled roller to the second chilled roller.

A. No teaching, suggestion, or motivation exists to combine CAN '575 and PCT '366 as suggested by the Office Action.

As explained by the Federal Circuit, obviousness may only be established by modifying the teachings of the prior art to produce the claimed invention if there is some teaching, suggestion, or motivation to do so found either in the reference itself or in the knowledge generally available to one of ordinary skill in the art. See e.g., In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992).

Accordingly, even if all elements of a claim are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill would have been prompted to modify the teachings of the references to arrive at the claimed invention. See e.g., In re Regel, 188 U.S.P.Q. 132 (C.C.P.A. 1975). Where no reasonable intrinsic or extrinsic justification exists for the proposed modification, a case of prima facie obviousness will not have been established.

In this case, no teaching, suggestion, or motivation exists to combine CAN '575 and PCT '366 as suggested by the Office Action. In Can '575, there is simply no teaching or suggestion to modify the disclosure to extrude the continuous filaments from the die heads of the extruder directly to the first chilled roller, in a canted direction that is tangent to the surface of the first chilled roller. In fact, in the Final Office Action on page 6, it is admitted that CAN '575 does not address canting of the extruder. The Office Action does not provide any support for the combination of CAN '575 and PCT '366 other than stating that "one would have been led to cant the extruder in the manner claimed." Appellants stress that obviousness may only be established by modifying the teaching of the prior art to produce the claimed invention if there is some teaching,

suggestion, or motivation to do so found in either the reference itself or the knowledge generally available to one of ordinary skill in the art.

Appellants respectfully submit that one of ordinary skill in the art would not be motivated to combine the apparent angled multiple extruders of PCT '366 with the vertically arranged series of chilled rollers disclosed in CAN '575. For instance, upon reading PCT '366, one of ordinary skill in the art would not be motivated to have the continuous filaments enter the chilled roller at a canted angle as required by the present claims because the use of the angles of entry for the continuous filaments in PCT '366 was motivated by the desire to incorporate both an elastic continuous filament from one extruder and non-elastic continuous filament from another extruder. Thus, the filaments enter the process in PCT '366 at an angle only to allow for filaments from two different extruders to enter the same nip formed by the rollers.

CAN '575 only discloses the use of a single extruder. Thus, combining the teachings of PCT '366 use of two different extruders positioned at an angle so that both filaments enter the same nip formed by the chilled rollers is purely impermissible hindsight. Appellants submit that only with the Appellants' specification could the structure or process of the presently pending claims be attained. Any attempt to arrive at the structure or process of the claims through the study of the cited references is only reachable from improper hindsight analysis after viewing Appellants' specification.

In stark contrast, the present disclosure requires that the continuous filaments enter the first chilled roller at a predetermined angle. This strand extrusion geometry is particularly advantageous for depositing a melt extrudate onto a rotating roll or drum. An angled, or canted, orientation provides an opportunity for the filaments to emerge from the die at an angle to the roll tangent point resulting in improved spinning, more efficient energy transfer, and generally longer die life. This improved configuration allows the filaments to emerge from the die and follow a relatively straight path to contact the tangent point on the roll surface. In many cases, this results in potentially increased roll wrap resulting in more efficient energy transfer and longer die life due to reduced drag and shear of the extrudate as it leaves the capillaries of the extruder die and proceeds to the chilled roll. Pgs. 11-12, ll., 22-20.

Nowhere in the cited references is there any suggestion that an angled, or canted, orientation would provide any advantage as discovered by the present

inventors. In fact, the only motivation for positioning the extruders at an angle is the use of two different extruders providing continuous filaments into the same nip, as taught by PCT '366. As such, Appellants respectfully submit that one of ordinary skill in the art, upon reading the cited references, would not be motivated to position an extruder for providing continuous filaments to a first chilled roller in a canted direction that is tangent to the surface of the first chilled roller as required by the pending claims.

One of ordinary skill in the art would also recognize that providing the continuous filaments at an angle introduces a longitudinal, gravitational force onto the die filament that is not present when the filament is extruded straight down onto the roll as shown in CAN '575. Prior to the present inventors' disclosure, Appellants submit one of ordinary skill in the art that would not have expected that the filaments, while still in the molten state prior to quenching, could withstand such an angle without breaking, especially at more severe angles such as about 45°. Accordingly, it appears that PCT '366 shows the two extruder heads as close to vertical as possible while allowing both filaments to enter the same nip.

Furthermore, Appellants respectfully submit that the teachings of PCT '366 is not compatible with the disclosure of CAN '575. The combination of the two processes, one having vertically arranged rollers and the other having horizontally arranged rollers, is not suggested nor does any motivation to combine exist.

Appellants respectfully submit that the combination of the angled position of the two extruders in PCT '366 with the vertically arranged rollers disclosed in CAN '575 is impermissible picking and choosing of certain elements of each of the disclosures. It is improper to simply pick and choose, or dismantle, just those components needed from the prior art reference to combine to another reference in a Section 103 combination.

B. PCT '366 teaches away from the present invention.

The Federal Circuit has several times expressly addressed the issue of how to evaluate an alleged case of prima facie obviousness to determine whether it has been properly made. For instance, "a prima facie case of obviousness can be rebutted if the applicant can show that the art in any material respect taught away from the claimed

invention." In re Haruna, 249 F.3d 1327,1335 (Fed. Cir. 2001), citing In re Geisler, 116 F.3d 1465, 1469 (Fed. Cir. 1997).

A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994). Furthermore, a "prior art reference must be considered in its entirety, ie., as a whole, including portions that would lead away from the claimed invention." M.P.E.P. 8th Ed., Rev. 2, §2141.02, citing W.L. Gore & Associates v Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983).

In this case, PCT '366 shows the use of horizontally positioned rollers that simultaneously contact the same position along the continuous filaments. As shown, the horizontally oriented rollers actually perform more like a nip rather than a series of rollers. For example, referring to Figures 3 and 4 of PCT '366, the continuous filaments are shown to enter a nip formed by two horizontally positioned chilled rollers. In fact, PCT '366 does not disclose the use of a canted or angled extruder extruding continuous filaments onto a single roller.

Appellants respectfully submit that the process of PCT '366 could not work when the filaments from both the extruders only first contact one chilled roller, as in the present invention. Referring to Figures 3 and 4 of PCT '366, the use of only one chilled roller would not effectively contact the filaments from the extruder positioned opposite to the roll, effectively rendering the disclosure of PCT '366 inoperative. As such, Appellants submit that one of ordinary skill in the art, upon reading the disclosure of PCT '366 would not be motivated to modify CAN '575 as suggested by the Office Action.

Also, according to PCT '366, the horizontally positioned rollers forming the nip only contact the filaments for an extremely short period of time. At any line speed, the filaments will only very quickly pass through the nip created by the rollers. As such, the filaments will not be effectively quenched as required by the present invention. Thus, Appellants respectfully submit that the disclosure of PCT '366 does not teach an effective method of quenching the continuous filaments, especially at higher line speeds.

In stark contrast, the presently pending claims require that the continuous filaments flow directly from the first chilled roller to the second chiller roller in order to allow for proper quenching times. As such, one of ordinary skill in the art would actually be led away from the presently claimed invention upon reading the disclosure of PCT '366.

C. No teaching, suggestion, or motivation exists to combine CAN '575, PCT '366 and any one of Pomplun, et al., Bunnelle, et al., or De Geest, et al.

As explained above, obviousness may only be established by modifying the teachings of the prior art to produce the claimed invention if there is some teaching, suggestion, or motivation to due so found in either the reference itself or the knowledge generally available to one of ordinary skill in the art.

In this case, even CAN '575 and PCT '366 are combined, absent any motivation or suggestion to do so, there is simply no further teaching, suggestion, or motivation to further combine any one of Pomplun, et al., Bunnelle, et al., or De Geest, et al. These three tertiary references were all cited for the proposition of using only two chilled rollers. As explained above, neither Can '575 nor PCT '366 teaches the use of only two chilled rollers in the lamination processes. However, the Office Action admits that all three tertiary references only suggest the use of horizontally disposed chilled rollers, and not vertically positioned chilled rollers. In fact, each of the two rollers in the three tertiary references are in horizontal succession, and none of the three patents teach or suggest the canted angle of the extruder.

On the other hand, independent claims 31 and 47 require that the series of vertically arranged rollers include two chilled rollers with a second chilled roller being positioned vertically below the first chilled roller and the second chilled roller being positioned to supply the quenched continuous filaments to a nip. Neither CAN '575 and PCT '366 teach the use of only two vertically arranged chilled rollers where the continuous filaments flow directly from the second of the chilled rollers to the laminating nip.

The present application discloses that a number of rollers are important for the desired operability of the present invention. For example, the number of separate

rollers to convey the continuous filaments to the bonding location may vary depending on the particular attributes desired in the final product. Application, page 13, lines 9-11. The inclusion of additional rollers, as disclosed in CAN '575 and PCT '366, to the presently claimed two roller invention would, necessarily materially affect the fundamental character of the presently claimed invention by affecting the final product.

Upon reading the disclosures of CAN '575 and PCT '366, one of ordinary skill in the art would not be motivated to combine the teachings of the three tertiary references as suggested by the Office Action. In fact, one of ordinary skill in the art would not be directed to Pomplun, et al., Bunnelle, et al., or De Geest, et al. because all three of these tertiary references are directed to horizontally disposed chilled rollers. Furthermore, as discussed in greater detail below, these three tertiary references actually teach away from the presently claimed invention.

There is no teaching or suggestion in any of the disclosures of the three horizontally positioned systems that a feature of these references, like the number of rollers, could be utilized in a vertically oriented system. According to the present application on page 5, lines 13-21, the vertical flow of the present invention allows for several benefits over prior horizontal flow processes. For example, because the continuous filaments are being extruded in a vertical direction that is approximately in line with the vertical flow of the entire lamination process, automatic re-threading of filaments when they are broken or interrupted in there travel downward may be achieved. In addition, when utilized, the series of rollers are arranged so as to provide the predetermining stretching characteristics to the continuous filaments.

Additionally, all three of the tertiary references are directed to processes involving films, as opposed to filaments discussed in both CAN '575 and PCT '366. As such, Appellants respectfully submit that one of ordinary skill in the art would not be motivated to combine the teachings of the three tertiary references, directed to the processing of films, with the disclosures of CAN '575 and PCT '366 directed to filaments.

Appellants respectfully submit that the combination of any of these references is impermissible picking and choosing of just those components needed from the prior art references to fabricate a Section 103 rejection. Furthermore, any combination of the references to arrive at the presently planned invention is reachable only from improper

hindsight analysis after viewing the Appellants' specification. Appellants emphasize that the teachings of the references must be viewed in their entirety, i.e., as a whole, to sustain a prima facie case of obviousness under Section 103.

D. Pomplun, et al., Bunnelle, et al., and De Geest, et al. teach away from the presently claimed invention.

As explained above, the three tertiary references only teach and suggest the use of a horizontal flow process. The horizontally positioned chilled rollers are in direct contrast to the teachings of the currently claimed invention requiring vertically arranged series of first and second chilled rollers.

Applicant again emphasizes that the teachings of the references must be viewed in their entirety, i.e., as a whole, to sustain a prima facie case of obviousness under 35 U.S.C. §103(a). Further, the appropriate test under 35 U.S.C. §103(a) is not whether the differences between the prior art and the claims are obvious, but instead whether the claimed invention as a whole would have been obvious. That is, the differences between a particular claim and the cited references cannot be viewed in a vacuum. In this case, Applicant respectfully submits that, when properly viewed as a whole, there is simply no motivation to combine the references in the manner suggested in an attempt to render obvious the present claims.

For example, as explained above, the three tertiary references cited by the Examiner teach that the two rollers are in horizontal secession and none of the three patents teach or suggest the canted angle of the extruder. There is no teaching or suggestion in any of the tertiary references that systems disclosed could be utilized in a vertically oriented lamination process. Thus, one skilled in the art would not be motivated to modify the vertical process disclosed in CAN '575 with the features of the horizontal processes, the number of chilled rollers, disclosed in the three tertiary references.

Furthermore, Bunnelle, et al., much like PCT '366, features the use of horizontally positioned chilled rollers allowing for simultaneous contact of both chilled rollers at the same position along the continuous filaments. In fact, neither reference teaches that the second chilled roller is positioned vertically below the first chilled roller and located before the set of nip rollers so that the extruded continuous filaments flow

directly from the first chilled roller to the second chilled roller and then directly to the nip formed by the set of nip rollers, as required in independent claim 31.

II. Claims 31-34, 36-41, 47-52, are patentable under 35 U.S.C. § 103(a) over Can '575 in view of PCT '366 and any one of Pomplun, et al., Bunnelle, et al., or De Geest, et al. even if the references are combinable because the combination does not disclose nor suggest all of the claimed elements of the present invention.

Even if the above-cited references were to be combined, absent any motivation for such combination, certain limitations of the claims of the present invention would still be lacking. For example, none of the references disclose that the extruder is configured to provide continuous filaments to a first chilled roller in a canted direction that is tangent to the surface of the chilled roller. In fact, PCT '366 is the only reference that shows that the continuous filament flow to the first chilled roller at an angle other than 90 degrees. However, as discussed above, the motivation for the angle in PCT '366 is the utilization of two different extruders. One skilled in the art would not be motivated to utilize an angle, as claimed in the present application, upon reading PCT '366.

Furthermore, PCT '366 does not disclose that the angle is tangent to the surface of the first chilled roller. As disclosed in the present application, this strand extrusion geometry is particularly advantageous for depositing a melt extrudate onto a rotating roll or drum. An angled, or canted, orientation provides an opportunity for the filaments to emerge from the extruder at an angle to the first chilled roller's tangent point resulting in improved spinning, more efficient energy transfer, and generally longer die life. This improved configuration allows the filaments to emerge from the die and follow a relatively straight path to contact the tangent point on the roll surface. Application, page 11, lines 22-30.

The pending claims of the present application require that the extruder is configured to provide the continuous filaments to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller. The continuous filament is tangent to the chilled roller if the continuous filament follows the tangent line of a circle, in this case the surface of the roll. A line is a tangent line at the point of contact with the circle if it touches the circle at that point and is also parallel to the circle at the point. The limitation of the continuous filament entering the roll at a tangent is not

disclosed in PCT '366. In fact, there is no disclosure in PCT '366 as the configuration of the extruder to allow the continuous filaments to enter the roll at a certain angle or in a certain position.

Thus, even upon the combination of the above references even without any motivation or suggestion to do so, one would still fail to obtain the methods and apparatus of the presently claimed invention.

III. Claim 35 is patentable under 35 U.S.C. § 103(a) over the above cited references in further view of any one of Japanese Patent No. 54/82424 ("JP '424"), Wirz, or Ditzler.

As shown above, there is no teaching, suggestion, or incentive to modify the above references as suggested by the Office Action. Furthermore, there is no suggestion or teaching in support of the combination of the three additional references cited against claim 35. Claim 35 has the additional limitation that upon breakage of the continuous filament, the filament is automatically rethreaded.

Appellants respectfully submit that there is no further teaching or suggestion to add the additional three references to the above references.

None of the originally cited references disclose or even mention that a filament is automatically rethreaded upon breakage of the continuous filament. In the present application, one of the advantages disclosed of the vertical flow process is the automatic re-threading of filaments when they are broken or interrupted in their travel downward. Application page 5, lines 15-19.

Upon reading the above cited references, mainly CAN '575, PCT '366, and any one of Pomplun, et al., Bunnelle, et al., and De Geest, et al., one of ordinary skill in the art would not be motivated to refer to the three additionally cited references of JP '424, Wirz, or Ditzler. For instance, there is no teaching, motivation, or suggestion that upon breakage of continuous filaments, that the filaments can be automatically rethreaded in a vertically arranged series comprising a first chilled roller and a second chilled roller. Appellants respectfully submit that the combination of all of the above references would not be obvious to one of ordinary skill in the art.

8. Conclusion

In conclusion, it is respectfully submitted that the claims are patentably distinct over the prior art of record and that the present application is in complete condition for allowance. As such, Appellants respectfully request issuance of a patent.

Respectfully submitted,

4/18/05
Date

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Claims Appendix – Exhibit A

1-29. (Canceled)

30. (Withdrawn) An apparatus for producing a composite nonwoven fabric, comprising:

a) an extruder having a plurality of die heads for extruding heated continuous filaments,

b) a series of chilled rollers comprising a first chilled roller and a second chilled roller, the first chilled roller being positioned vertically below the extruder so that the extruded heated continuous filaments flow directly to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller and the second chilled roller being positioned so that the extruded continuous filaments flow directly from the first chilled roller to the second chilled roller, wherein the series of chilled rollers are enclosed within a sealed tower structure that provides conditioned air to the enclosed series of chilled rollers,

c) a nip comprising at least two nip rollers, said nip being positioned vertically with respect to the first chilled roller in order to receive said heated continuous filaments,

d) a roller mechanism for providing a first web to said nip to be laminated with the continuous filaments so as to form a continuous filament laminate, and

e) a mechanism for carrying the continuous filament laminate away from the nip.

31. (Previously Presented) A method for producing a composite nonwoven fabric in a vertical plane, comprising:

a) providing an extruder having a plurality of die heads, vertically-arranged series of first and second chilled rollers, and a set of nip rollers, the extruder being located above the vertically-arranged series of first and second chilled rollers, the first chilled roller being positioned vertically below the extruder so that extruded filaments from the extruder flow directly to the first chilled roller, the second chilled roller being positioned vertically below the first chilled roller and located before the set of nip rollers

so that the extruded continuous filaments flow directly from the first chilled roller to the second chilled roller and then directly to a nip formed by the set of nip rollers,

b) extruding heated continuous filaments from the die heads of the extruder directly to the first chilled roller, wherein the extruder is further configured to provide the continuous filaments to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller,

c) conveying the continuous filaments directly from the first chilled roller to the second chilled roller,

d) quenching and stretching simultaneously the continuous filaments to form stretched continuous filaments,

e) conveying the stretched continuous filaments directly from the second chilled roller to the nip,

f) providing at least one nonwoven web,

g) applying an adhesive on the surface of the one nonwoven web and then providing said one nonwoven web to the nip, and

h) laminating the stretched continuous filaments with the nonwoven web in the nip to form a composite nonwoven fabric.

32. (Previously Presented) The method of claim 31 wherein the continuous filaments are elasticized.

33. (Previously Presented) The method of claim 31 wherein the composite nonwoven fabric is elasticized.

34. (Previously Presented) The method of claim 31 wherein the continuous filaments move vertically downward approximately in line with the lamination process.

35. (Previously Presented) The method of claim 31 wherein upon breakage of a continuous filament, the filament is automatically re-threaded.

36. (Previously Presented) The method of claim 31 comprising the further step of relaxing said composite nonwoven fabric by a take-up roll running at a differential speed.

37. (Previously Presented) The method of claim 31 comprising the further step of providing a second nonwoven web and laminating the second nonwoven web to the continuous filaments in the nip.

38. (Previously Presented) The method of claim 37 comprising the further step of applying an adhesive on the surface of the second nonwoven web prior to laminating the second nonwoven web at the nip.

39. (Previously Presented) The method of claim 31 wherein the speed ratio of the nip rolls relative to the first chilled roller can be varied.

40. (Previously Presented) The method of claim 39 wherein the speed ratio of the nip rolls relative to the first chilled roller is between about 2:1 and about 8:1.

41. (Previously Presented) The method of claim 39 wherein the speed ratio of the nip rolls relative to the first chilled roller is between about 4:1 and about 6:1.

42. (Withdrawn) A method for producing a composite nonwoven fabric in a vertical plane, comprising:

a) vertically extruding heated continuous filaments from die heads of an extruder to a conveying roller that is chilled and positioned vertically below the extruder so that extruded filaments from the extruder flow directly to the conveying roller in a canted direction that is tangent to the surface of the conveying roller;

b) quenching and stretching simultaneously the continuous filaments on the chilled conveying roller,

c) conveying the stretched continuous filaments directly from the conveying roller in a downward direction to a nip comprising nip rollers,

d) providing at least one nonwoven web to the nip,

e) laminating the stretched continuous filaments with the nonwoven web in the nip to form a composite nonwoven fabric, and

f) relaxing the composite nonwoven fabric.

43. (Withdrawn) The method of claim 42 comprising the further step of providing a second nonwoven web to the nip and laminating the continuous filaments with the one nonwoven web and the second nonwoven web in the nip to form a composite nonwoven fabric.

44. (Withdrawn) The method of claim 42 wherein an adhesive is applied to the nonwoven web prior to providing the web to the nip.

45. (Withdrawn) The method of claim 42 wherein said adhesive is sprayed on said nonwoven web.

46. (Withdrawn) The method of claim 44 wherein an adhesive is applied to the second nonwoven web prior to providing the second nonwoven web to the nip.

47. (Previously Presented) An apparatus for producing a composite nonwoven fabric, comprising:

a) an extruder having a plurality of die heads for extruding heated continuous filaments,

b) a vertically-arranged series of first and second chilled rollers, wherein the first chilled roller is positioned vertically below the extruder so that extruded filaments from the extruder flow directly to the first chilled roller in a canted direction that is tangent to the surface of the first chilled roller and the second chilled roller is positioned vertically below the first chilled roller so that the extruded continuous filaments flow directly from the first chilled roller to the second chilled roller,

c) a nip comprising at least two nip rollers, said nip being positioned vertically with respect to the first chilled roller in order to receive the heated continuous filaments directly from the second chilled roller,

d) a roller mechanism for providing a first web to said nip to be laminated with the continuous filaments so as to form a continuous filament laminate, and

e) a mechanism for carrying the continuous filament laminate away from the nip.

48. (Previously Presented) The apparatus of claim 47 further comprising an adhesive applicator for applying adhesive to the first web prior to providing the first web to the nip.

49. (Previously Presented) The apparatus of claim 48 wherein the adhesive applicator applies the adhesive by spraying the adhesive onto the first web.

50. (Previously Presented) The apparatus of claim 47 further comprising a roller mechanism for providing a second web to said nip to be laminated with the continuous filaments and the first web so as to form a continuous filament laminate.

51. (Previously Presented) The apparatus of claim 48 further comprising an adhesive applicator for applying adhesive to the second web prior to providing the second web to the nip.

52. (Previously Presented) The apparatus of claim 51 wherein the adhesive applicator for the second web applies the adhesive by spraying the adhesive onto the second web.